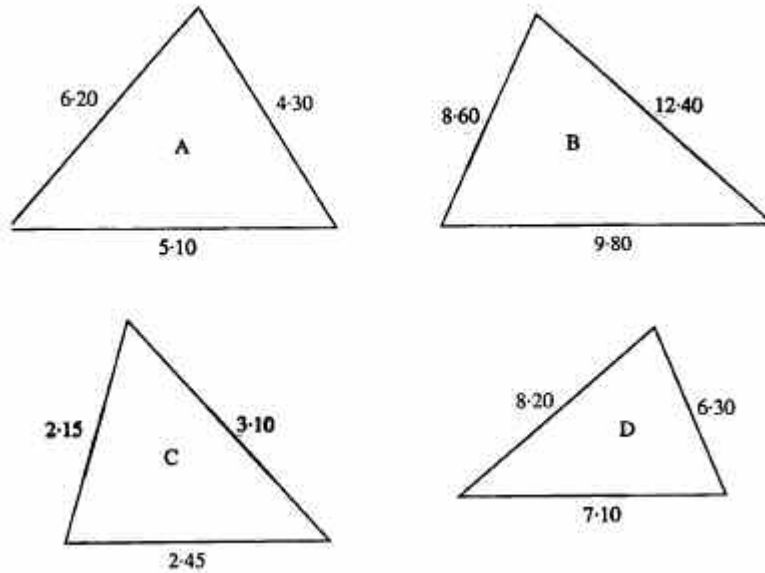


## GCSE MATHEMATICS Intermediate Tier, topic sheet. SIMILAR TRIANGLES

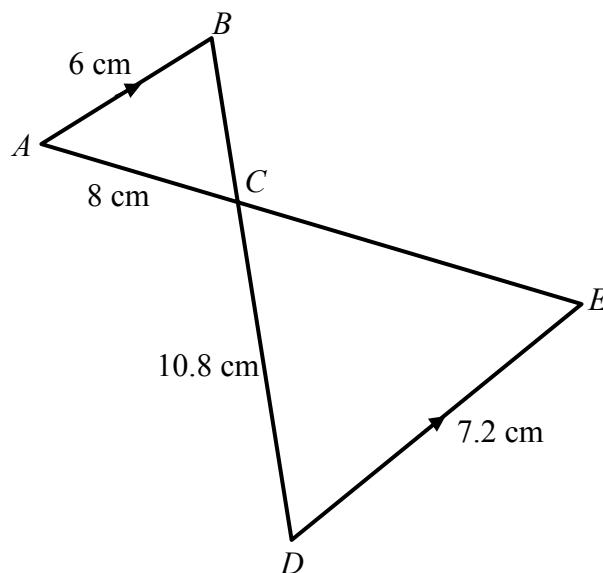
1. The diagrams below show four triangles, labelled A, B, C and D, with the lengths of their sides, in cm, marked on them.



*Diagrams not drawn to scale.*

Two of the triangles are similar to each other.  
 Explain which two triangles are similar, giving full reasons to justify your answer.

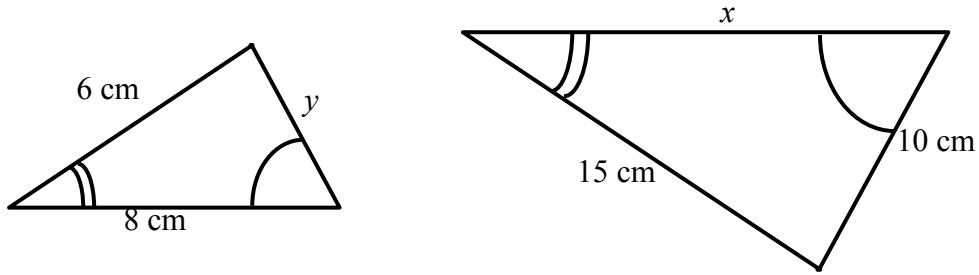
- 2.



In the diagram,  $AB$  is parallel to  $DE$ , and the triangles  $ABC$  and  $EDC$  are similar.  
 $AB = 6$  cm,  $AC = 8$  cm,  $DE = 7.2$  cm and  $CD = 10.8$  cm.

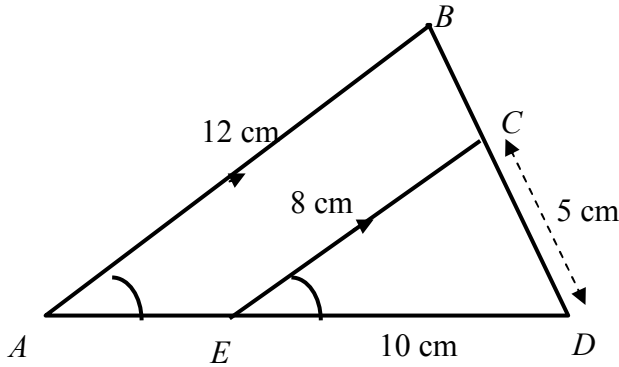
Find the lengths of            a)  $CE$ ,            b)  $BC$ .

3.



The 2 triangles drawn are **similar**. Calculate the lengths of  $x$  and  $y$ .

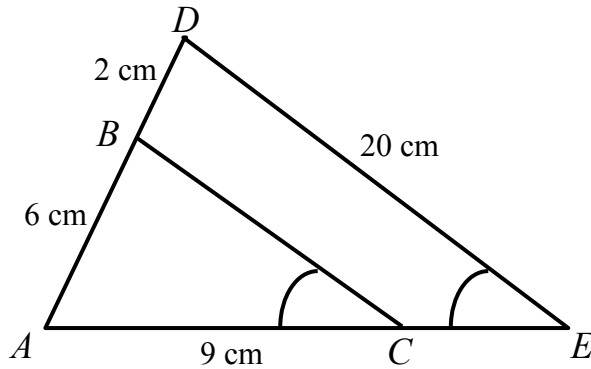
4.



In the diagram,  $AB$  is parallel to  $CE$ , and the triangles  $ABD$  and  $CDE$  are similar.  $AB = 18$  cm,  $CE = 8$  cm,  $CD = 5$  cm and  $DE = 10$  cm.

Find the lengths of a)  $AD$ , b)  $AE$ , c)  $BC$ .

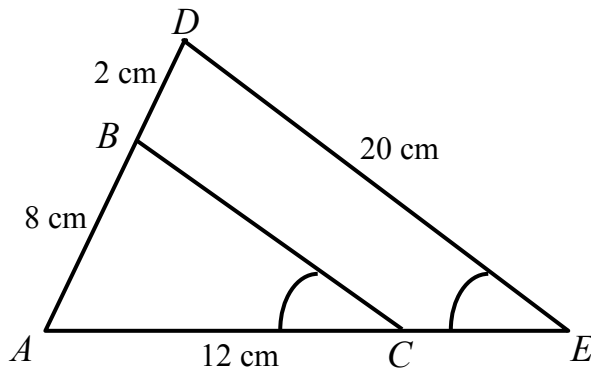
5.



In the diagram, triangles  $ABC$  and  $ADE$  are similar.

Showing all your working, find the length of a)  $AE$ , b)  $BC$ .

6.



In the diagram, triangles  $ABC$  and  $ADE$  are similar.

Showing all your working, find the length of a)  $CE$ , b)  $BC$ .

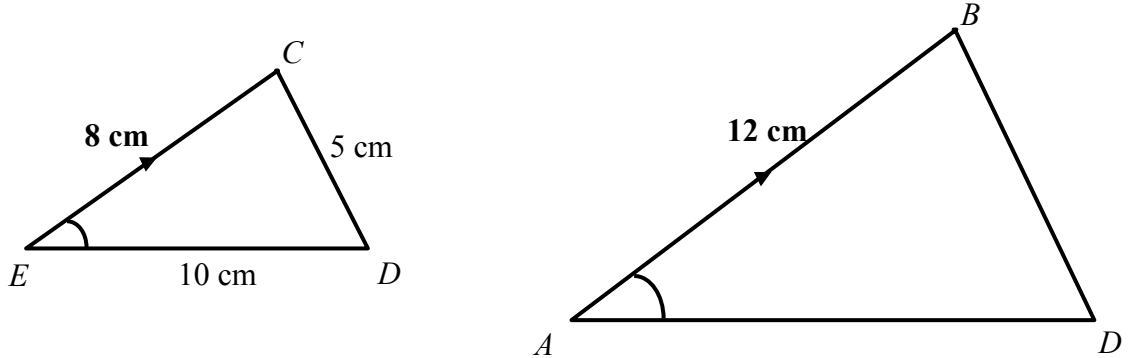
SOLUTIONS / ANSWERS.

1. B and C are similar with a scale factor of  $\times 4$ .

2. {Scale-factor = 1.2}            a) 9.6 cm            b) 9 cm.

3. {Scale-factor = 2.5}             $x = 20$  cm,  $y = 4$  cm.

4. Triangles  $ABD$  and  $ECD$  are similar.



$$\text{Scale-factor} = \frac{12}{8} = 1.5.$$

a)  $AD = 1.5 \times 10 \text{ cm} = 15 \text{ cm}.$

b)  $AE = AD - 10 = 5 \text{ cm}.$

c)  $BD = 1.5 \times 5 \text{ cm} = 7.5 \text{ cm}.$  Thus  $BC = 7.5 - 5 = 2.5 \text{ cm}.$

5. {Scale-factor =  $\frac{4}{3}$ }            a) 12 cm            b) 15 cm.

6. {Scale-factor =  $\frac{5}{4}$ }            a) 3 cm            b) 16 cm.